

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for enhanced uplink data transmission, comprising:

independently generating, at a user equipment, a transport channel for each of a plurality of transmission modes, each transport channel having an associated transmission time interval (TTI) that is at least one of a sub-multiple and a multiple of 10 ms, the plurality of transmission modes including,

a scheduled transmission mode in which both a time and rate of transmission for transmission by the user equipment is determined based on a received instruction from a base station, and

an autonomous transmission mode in which only the rate of transmission for transmission by the user equipment is limited by the received instruction from the base station;

multiplexing, by the user equipment, the generated transport channels to form a composite transport channel, the formed composite channel having one TTI, the TTI of the formed composite transport channel being equal to the minimum TTI of the TTIs associated with the independently generated transport channels; and

mapping, by the user equipment, the composite transport channel onto a physical channel at a radio frame corresponding to the TTI of the composite transport channel.

2. (Canceled)

3. (Previously Presented) The method of claim 1, wherein the independently generating step generates first and second transport channels having first and second TTIs, respectively, and the second TTI is a multiple of the first TTI.
4. (Canceled)
5. (Previously Presented) The method of claim 3, wherein the first TTI is 2ms and the second TTI is 10ms.
6. (Original) The method of claim 1, wherein the generating step independently generates transport channels for more than one transmission mode.
7. (Canceled)
8. (Canceled)
9. (Original) The method of claim 6, wherein the first TTI is 2ms and the second TTI is 10ms.
10. (Previously Presented) The method of claim 1, wherein the mapping step maps the composite transport channel onto the physical channel based on the TTI of the formed composite channel.
11. (Currently Amended) An apparatus for enhanced uplink data transmission, comprising:
at least two control units each independently generating a transport channel for a different transmission mode, the at least two control units including at least

a first control unit generating a first transport channel for a scheduled transmission mode in which both a time and rate of transmission for transmission by the apparatus is determined based on a received instruction from a base station, and

a second control unit generating a second transport channel for an autonomous transmission mode in which only the rate of transmission for transmission by the apparatus is limited by the received instruction from the base station,

each transport channel having an associated transmission time interval (TTI) that is at least one of a sub-multiple and a multiple of 10 ms;

a transport channel multiplexer at the user equipment multiplexing the generated transport channels to form a composite transport channel, the formed composite channel having one TTI, the TTI of the formed composite transport channel being equal to the minimum TTI of the TTIs associated with the independently generated transport channels; and

a mapping unit, at the user equipment, mapping the composite transport channel onto a physical channel, at a radio frame corresponding to the TTI of the composite transport channel.

12. (Previously Presented) A method of wireless uplink communication comprising:

mapping, at a user equipment, at least two transport channels within a physical channel, at a radio frame corresponding to a transmission time interval (TTI) of the composite transport channel, the at least two transport channels including,

a first transport channel for a scheduled transmission mode in which both a time and rate of transmission for transmission by the user equipment is determined based on a received instruction from a base station, and

a second transport channel for an autonomous transmission mode in which only the rate of transmission for transmission by the user equipment is limited by the received instruction from the base station,

each transport channel having an associated ~~transmission time interval~~ TTI that is at least one of a sub-multiple and a multiple of 10 ms;

multiplexing, at the user equipment, the at least two transport channels to form a composite transport channel, the formed composite channel having one TTI, the TTI of the formed composite transport channel being equal to the minimum TTI of the TTIs associated with the at least two transport channels.

13. (Previously Presented) The method of Claim 12, wherein each of the transport channels has a distinct TTI associated thereto.

14. (Previously Presented) The method of Claim 12, wherein the at least two transport channels are generated for each transmission mode.

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Previously Presented) The method of claim 14, wherein the first and second transport channels are generated having first and second TTIs, respectively, and the second TTI is a multiple of the first TTI.

19. (Canceled)

20. (Previously Presented) The method of claim 12, wherein the step of mapping maps the composite transport channel onto the physical channel based on the TTI of the formed composite channel.